

# João Dossena

AI/ML Engineer

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## Work Experience

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**MATH Group, Brazil**, Software Engineer in R&D on an **AI Platform** Oct 2025 – Now

- Implemented an **LLM scoring pipeline**, ranking models regarding **performance, response quality** and **cost** for specific stakeholder use cases.
  - Parallelized this pipeline using **asyncio**, reducing execution time by **~70%**
  - Developed and optimized API endpoints, with some of them achieving **~10x faster** execution times

## Education

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**KU Leuven, Belgium**, MSc/MEng in Computer Science Sept 2021 – Sept 2023

- Thesis in **Natural Language Processing**: “Learning What to Learn: Generating Language Lessons using BERT“
  - Fine-tuned a BERT-based LM (Huggingface, PyTorch, HPC cluster) to **double SOTA metrics** in Portuguese language proficiency classification; trained a topic model on 273k bilingual documents using BERTopic.
- Followed the Artificial Intelligence track, taking courses on AI/ML, Computer Vision, Distributed Systems, Cybersecurity, among others.

**University of Porto, Portugal**, BSc in Computer Science Sept 2018 – Jul 2021

- Awarded an **Incentive Scholarship** for International Students due to ranking in the **top 10%** in the entrance exam cohort and maintaining good grades up to graduation.

## Projects

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**Cryptocurrency Algorithmic Trading** 2020

- Built an algorithmic trading system in Python with live trading, backtesting, and strategy visualization modules using Pandas, Numpy, and Matplotlib.

**Machine Learning from Scratch** Repository

- Implemented ML models from scratch (KNN to nanoGPT-2) on benchmark and TinyShakespeare datasets using PyTorch, Pandas, Numpy, and Scikit Learn.

## Competitions

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**Hackathons** 2022 - 2023

- IMC Prosperity 2023: Ranked 159 out of 1750 teams (**Top 10%**) performing algorithmic and manual trading with various mock assets in C++ and Python.
- Optiver ReadyTraderGo 2023: Ranked top 128 out of 2800 teams (**Top 5%**) performing algorithmic market making on a simulated exchange in C++ and Python.
- Optiver TraderHack 2022: Ranked **6th** out of 110 teams (**Top 5%**) performing algorithmic arbitrage and market making on a simulated exchange in Python.

## Technologies and Skills

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**Languages:** Python, TypeScript, Bash, SQL

**Technologies and tools:** React, Jupyter Notebooks, Pandas, Numpy, Matplotlib, Langchain, PyTorch, Huggingface, Scikit Learn, Linux, Git, CLI tools, CI/CD

**Language skills:** English, Portuguese, Spanish (**Fluent**); French, German, Dutch (**Elementary**)

**Other:** RAG, Distributed Systems, Algorithmic Trading